FIG.1

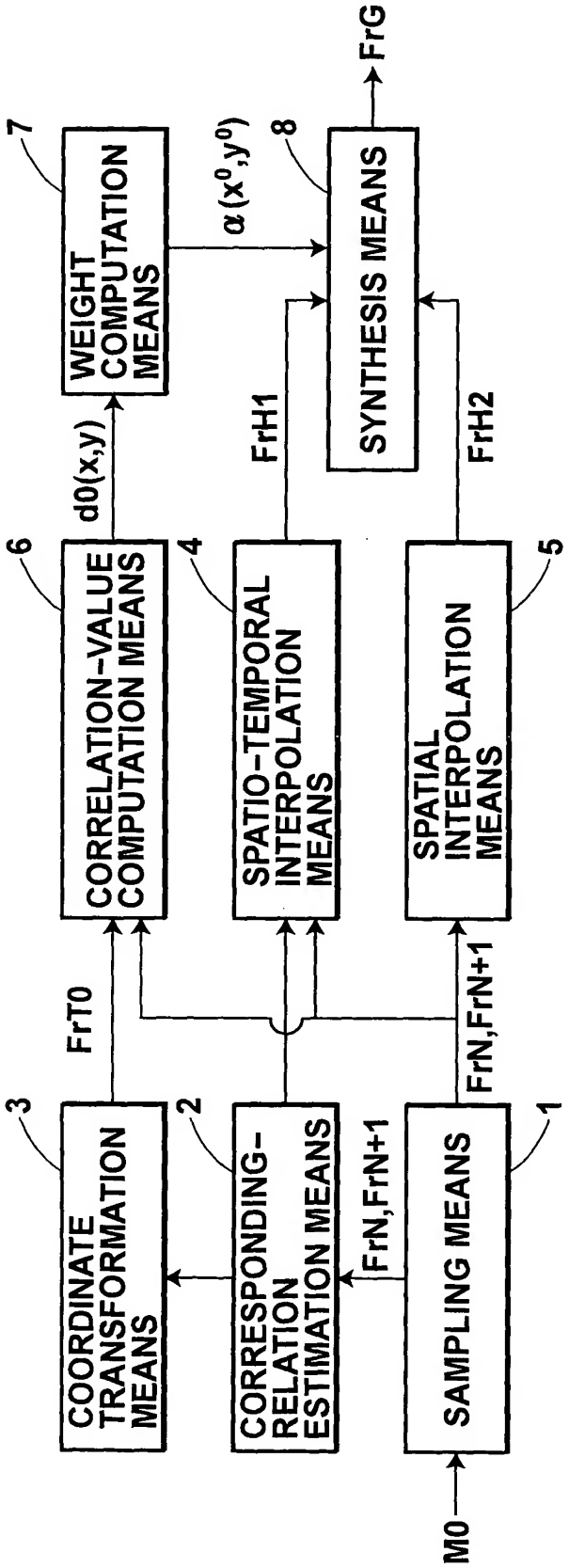

M0
SAMPLING MEANS
1
FrN,FrN+1
SPATIAL INTERPOLATION MEANS
5
FrH2
SYNTHESIS MEANS
8
FrG
FrN,FrN+1
CORRESPONDING-RELATION ESTIMATION MEANS
2
SPATIO-TEMPORAL INTERPOLATION MEANS
4
FrH1
FrT0
COORDINATE TRANSFORMATION MEANS
3
CORRELATION-VALUE COMPUTATION MEANS
6
d0(x,y)
WEIGHT COMPUTATION MEANS
7
α(x0,y0)

FIG.2A

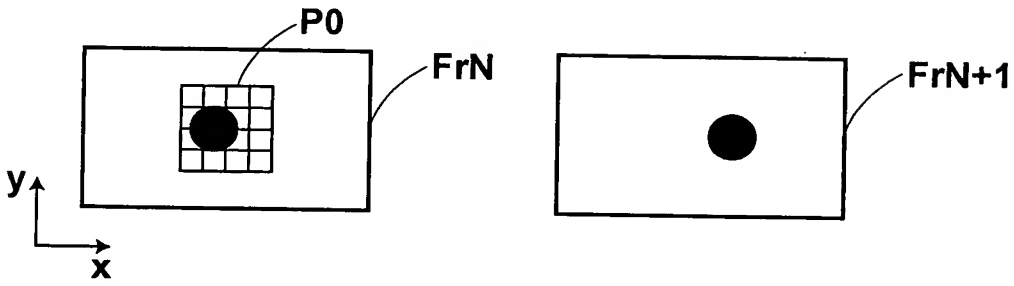


FIG.2B

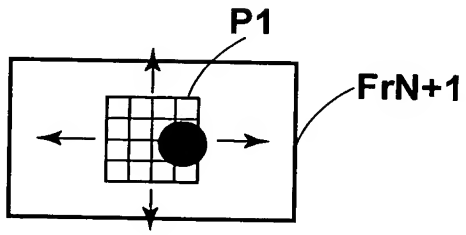


FIG.2C

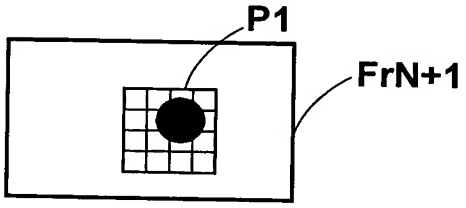


FIG.2D

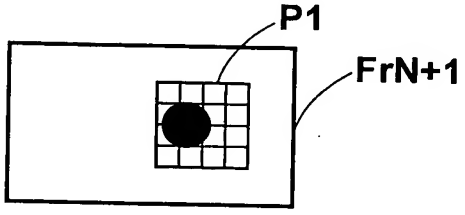


FIG.3

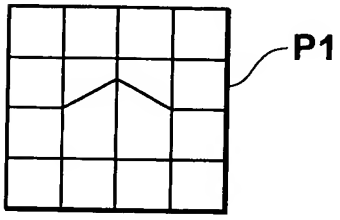


FIG.4

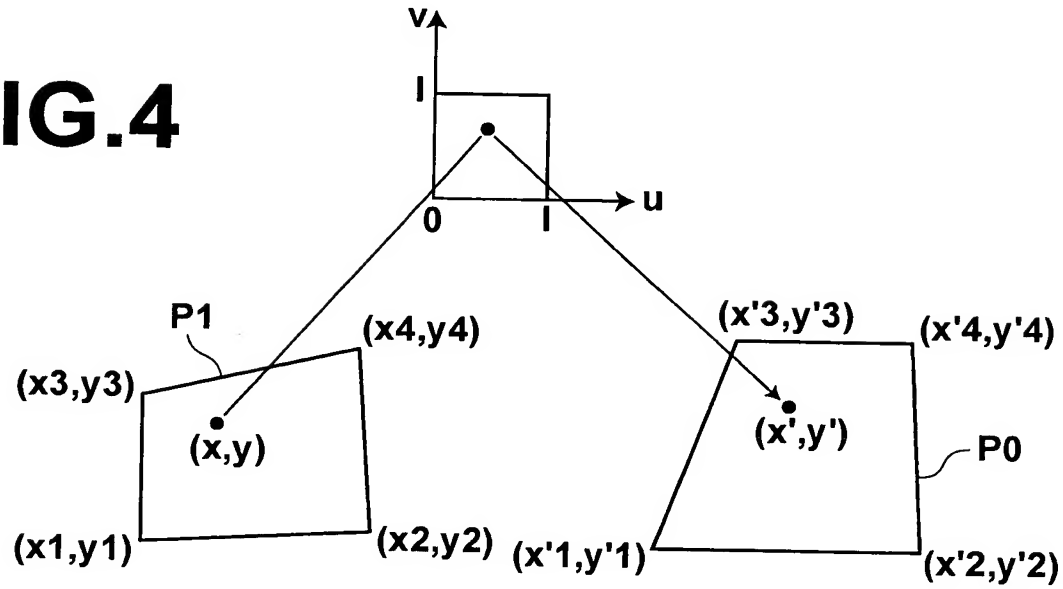


FIG.5

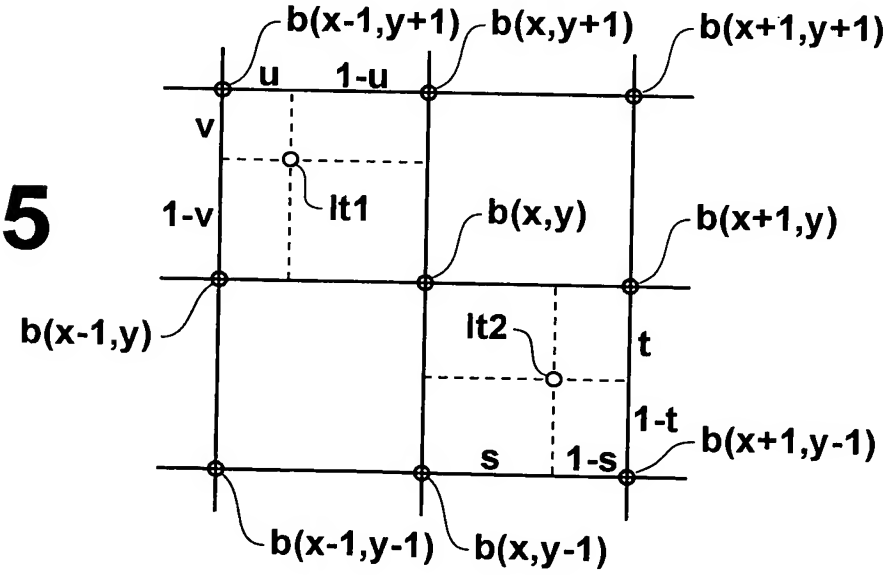


FIG.6

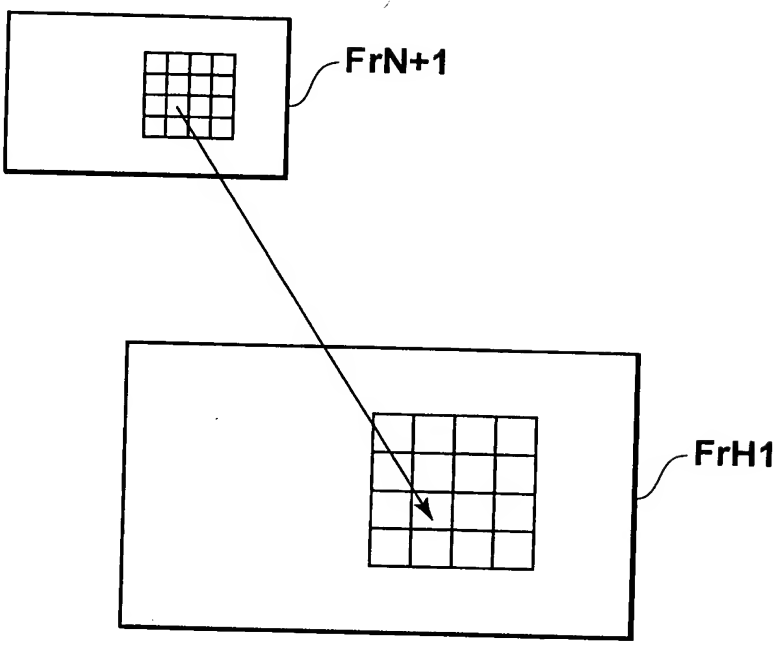


FIG.7

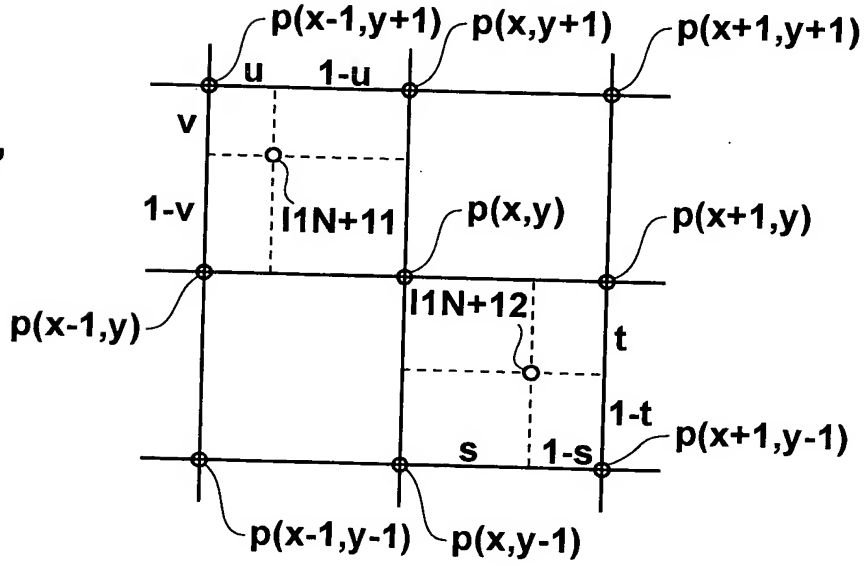


FIG.8

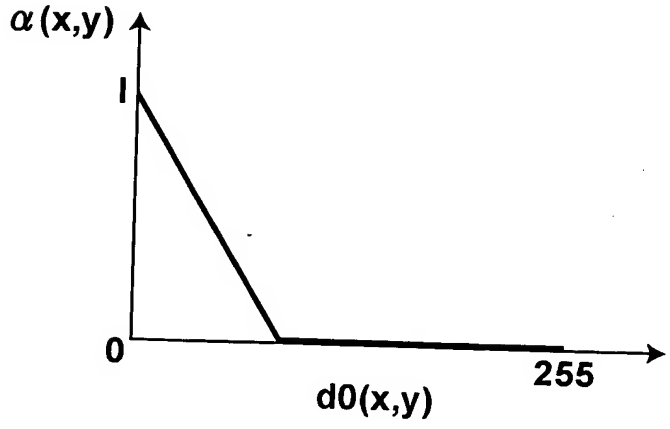


FIG.9

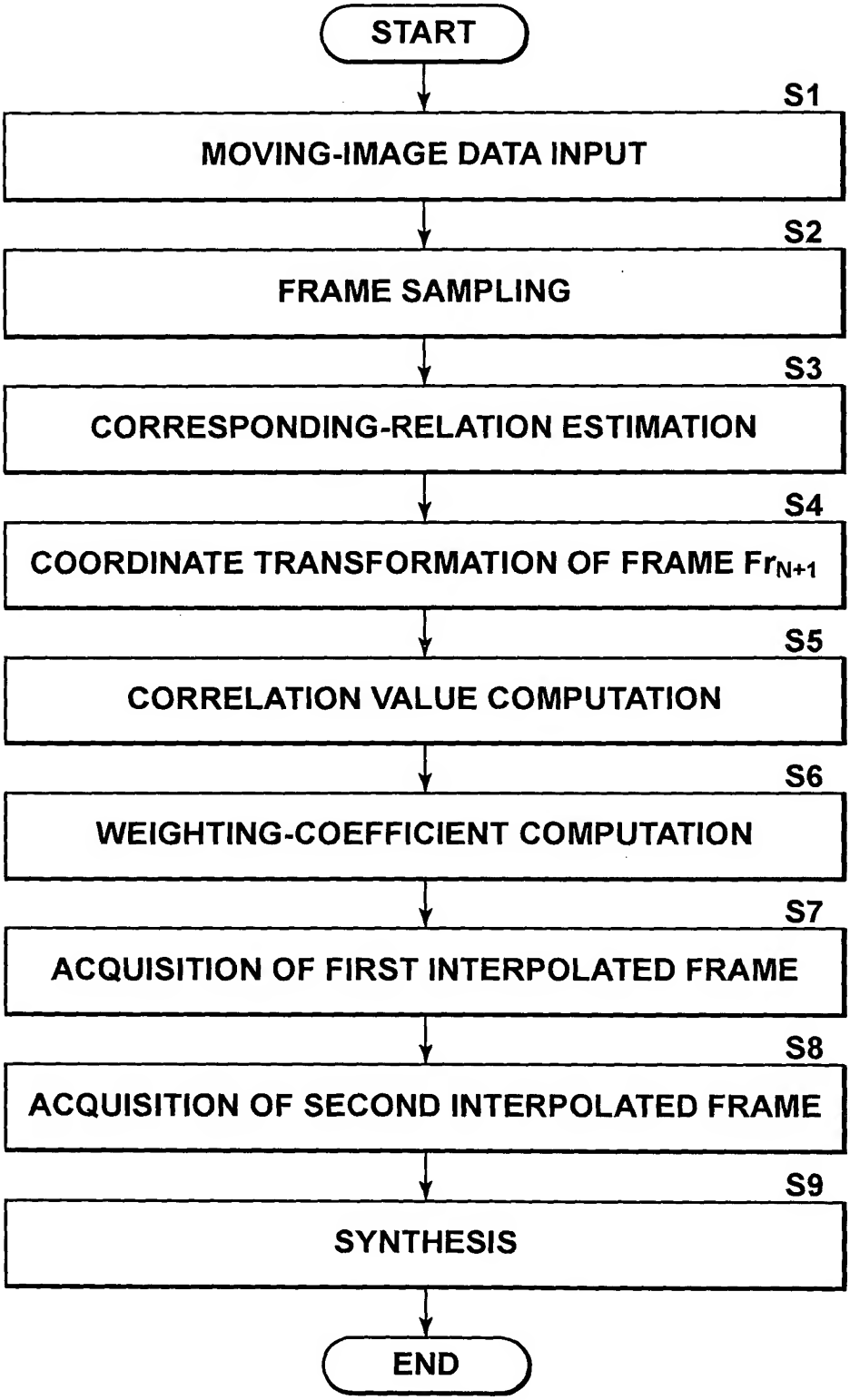

START
S1
MOVING-IMAGE DATA INPUT
S2
FRAME SAMPLING
S3
CORRESPONDING-RELATION ESTIMATION
S4
COORDINATE TRANSFORMATION OF FRAME Fr_{N+1}
S5
CORRELATION VALUE COMPUTATION
S6
WEIGHTING-COEFFICIENT COMPUTATION
S7
ACQUISITION OF FIRST INTERPOLATED FRAME
S8
ACQUISITION OF SECOND INTERPOLATED FRAME
S9
SYNTHESIS
END

FIG.10

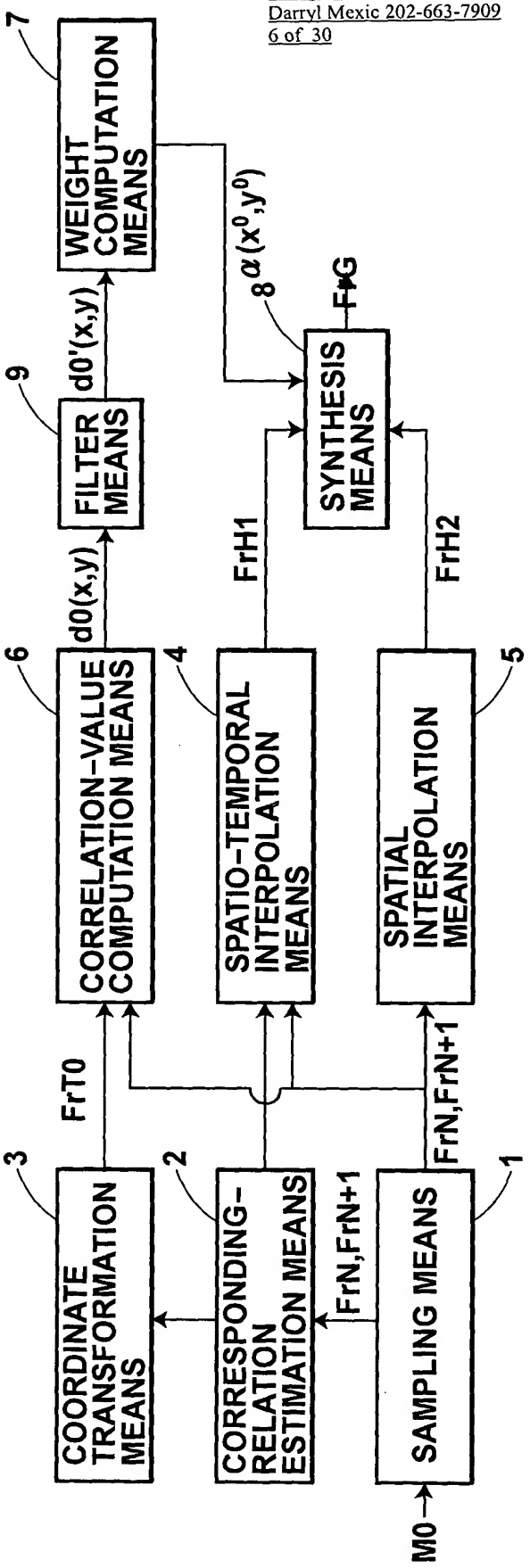

M0
SAMPLING MEANS
1
FrN,FrN+1
CORRESPONDING-RELATION ESTIMATION MEANS
2
FrN,FrN+1
COORDINATE TRANSFORMATION MEANS
3
FrT0
SPATIAL INTERPOLATION MEANS
5
FrH2
SPATIO-TEMPORAL INTERPOLATION MEANS
4
FrH1
CORRELATION-VALUE COMPUTATION MEANS
6
d0(x,y)
FILTER MEANS
9
d0'(x,y)
WEIGHT COMPUTATION MEANS
7
8 α(x0,y0)
SYNTHESIS MEANS
F•G

FIG.11

1	1	1
1	1	1
1	1	1

FIG.12

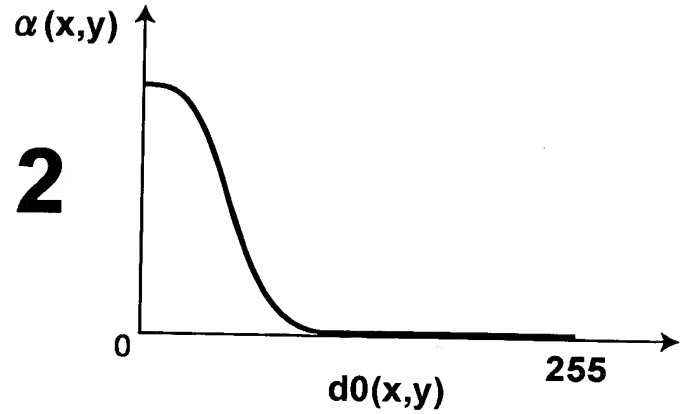


FIG.13

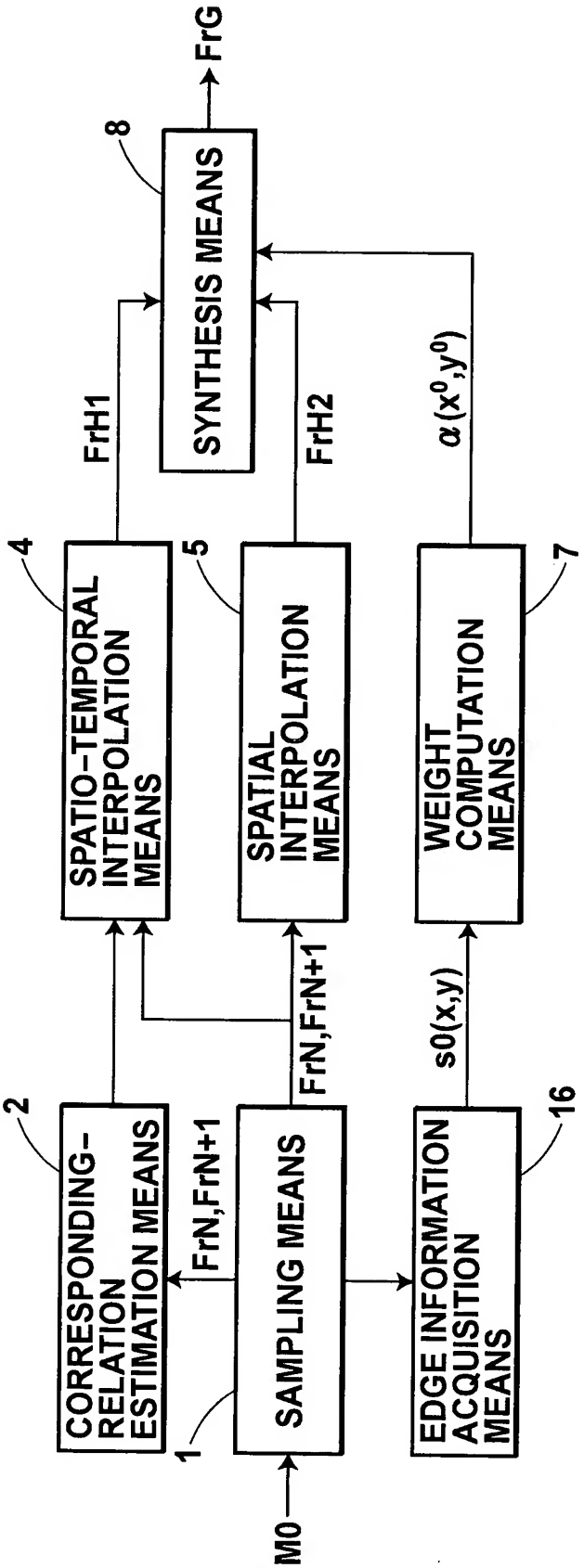

M0
SAMPLING MEANS
1
CORRESPONDING-RELATION ESTIMATION MEANS
2
SPATIO-TEMPORAL INTERPOLATION MEANS
4
SPATIAL INTERPOLATION MEANS
5
WEIGHT COMPUTATION MEANS
7
SYNTHESIS MEANS
8
EDGE INFORMATION ACQUISITION MEANS
16
FrN,FrN+1
FrN,FrN+1
FrH1
FrH2
s0(x,y)
α(x0,y0)
FrG

FIG.14

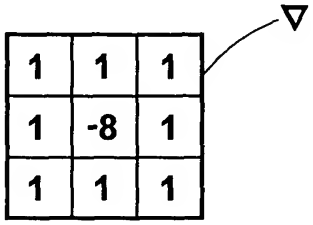


FIG.15

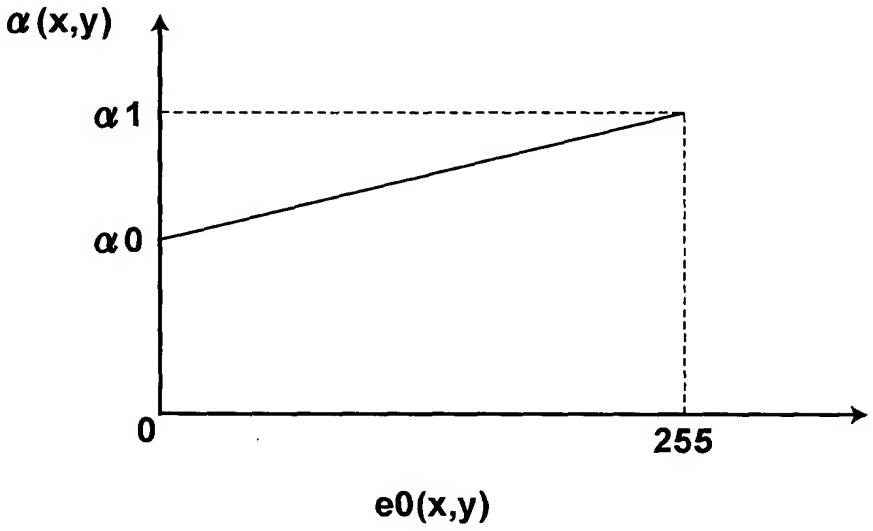


FIG.16

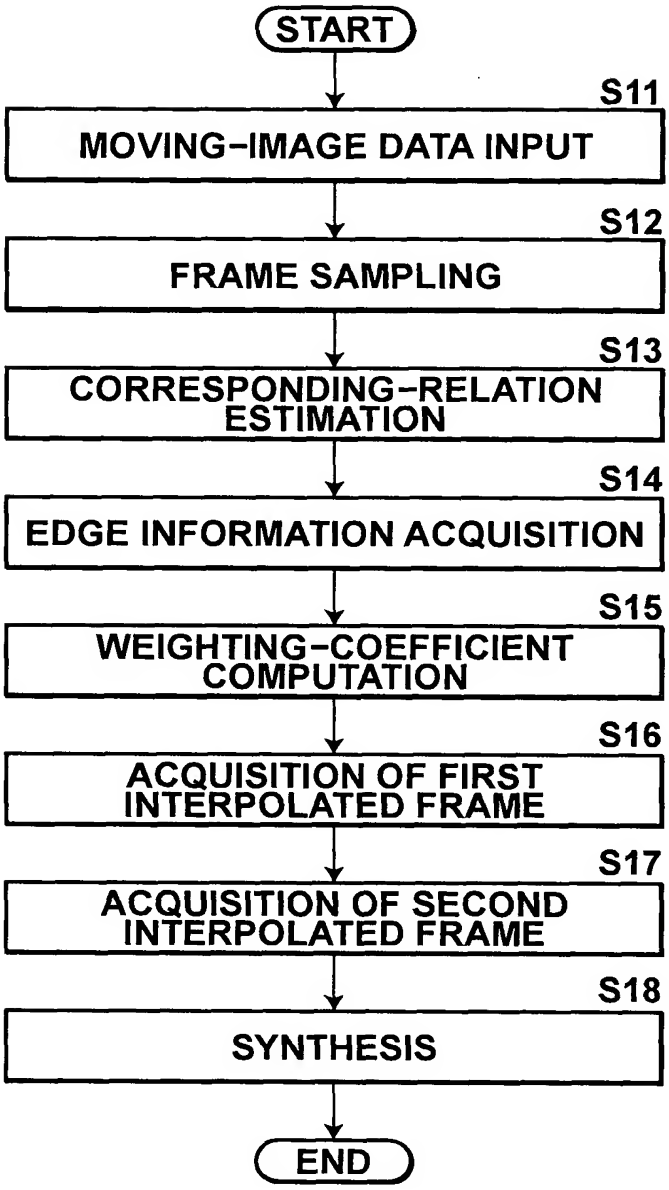

START
S11
MOVING-IMAGE DATA INPUT
S12
FRAME SAMPLING
S13
CORRESPONDING-RELATION ESTIMATION
S14
EDGE INFORMATION ACQUISITION
S15
WEIGHTING-COEFFICIENT COMPUTATION
S16
ACQUISITION OF FIRST INTERPOLATED FRAME
S17
ACQUISITION OF SECOND INTERPOLATED FRAME
S18
SYNTHESIS
END

FIG.17

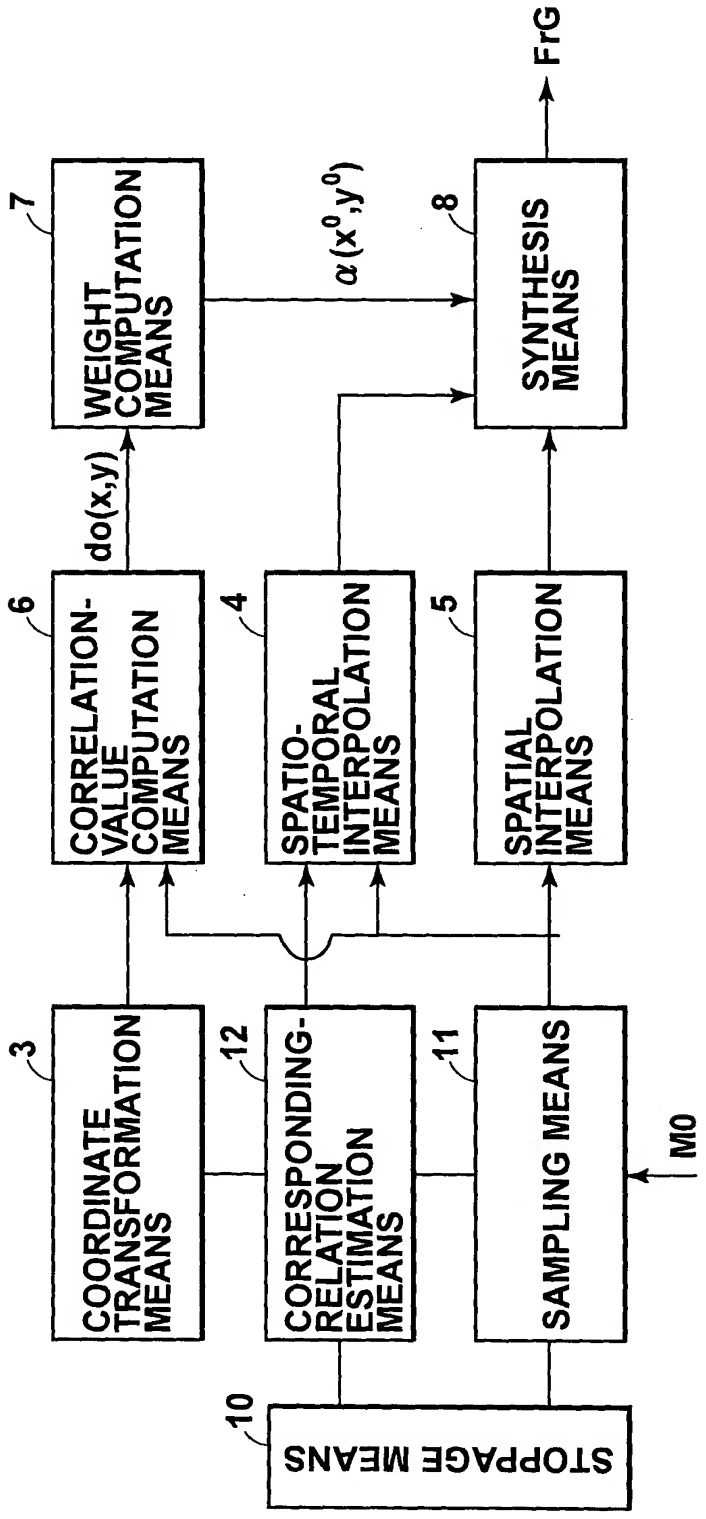

FrG
7
WEIGHT COMPUTATION MEANS
α(x0,y0)
8
SYNTHESIS MEANS
do(x,y)
6
CORRELATION-VALUE COMPUTATION MEANS
4
SPATIO-TEMPORAL INTERPOLATION MEANS
5
SPATIAL INTERPOLATION MEANS
3
COORDINATE TRANSFORMATION MEANS
12
CORRESPONDING-RELATION ESTIMATION MEANS
11
SAMPLING MEANS
M0
10
STOPPAGE MEANS

FIG.18

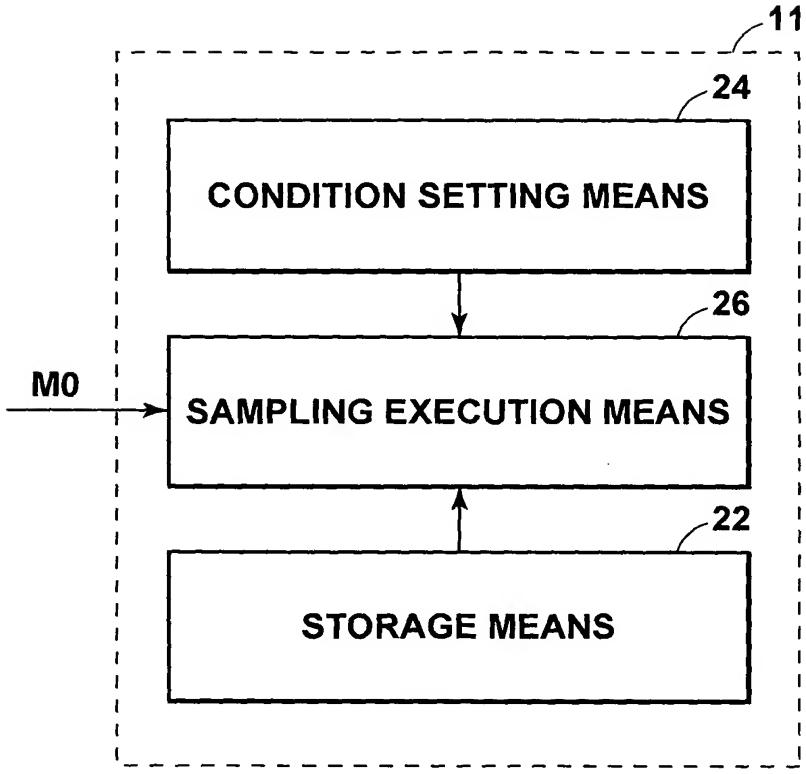

11
24
CONDITION SETTING MEANS
26
M0
SAMPLING EXECUTION MEANS
22
STORAGE MEANS

FIG.19

MAGNIFICATION RATIO	FRAME RATE	COMPRESSION QUALITY	FRAME NUMBER S
2	10	HIGH	3
2	10	MEDIUM	4
2	10	LOW	5
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
2	10	HIGH	3
2	10	MEDIUM	4
2	10	LOW	5
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

FIG.20

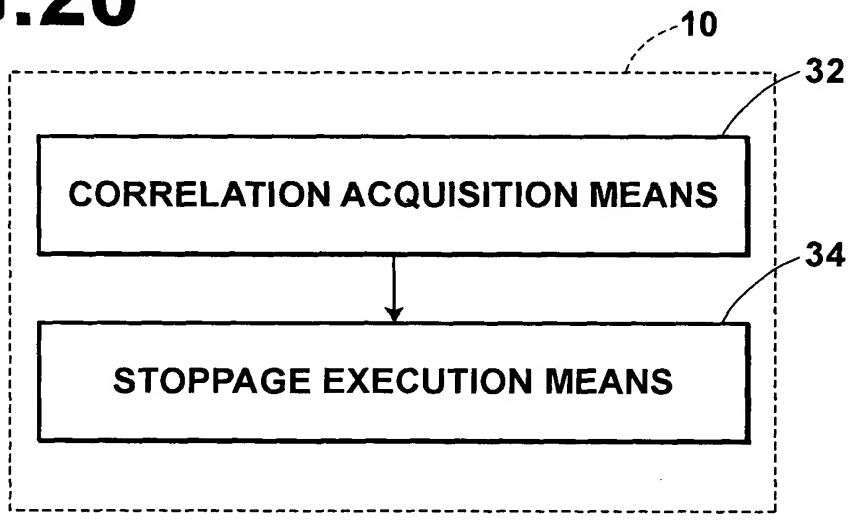


FIG.21

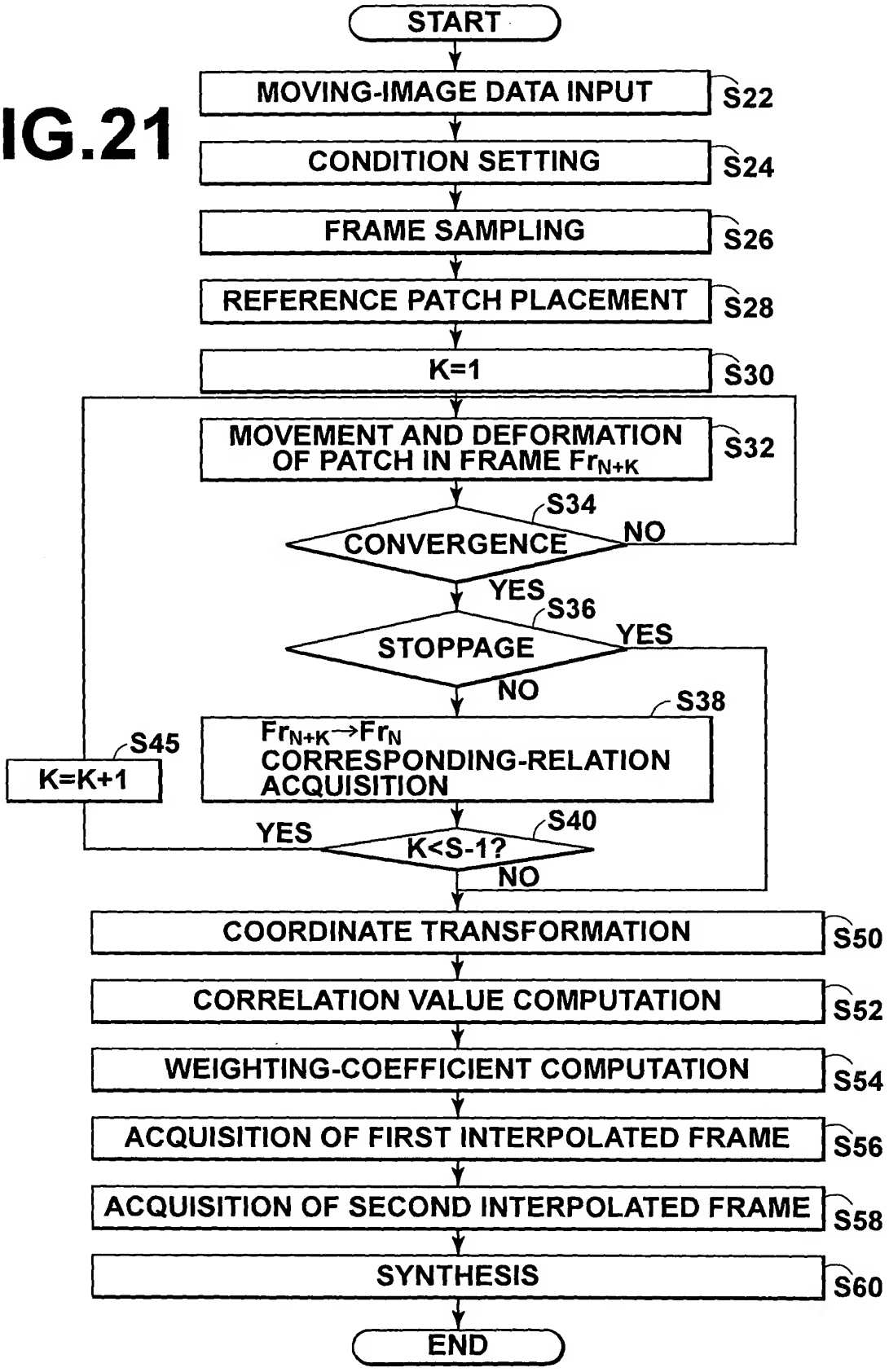

START
MOVING-IMAGE DATA INPUT
S22
CONDITION SETTING
S24
FRAME SAMPLING
S26
REFERENCE PATCH PLACEMENT
S28
K=1
S30
MOVEMENT AND DEFORMATION OF PATCH IN FRAME Fr_{N+K}
S32
S34
CONVERGENCE
NO
YES
S36
STOPPAGE
YES
NO
S38
$Fr_{N+K} \rightarrow Fr_N$ CORRESPONDING-RELATION ACQUISITION
S45
K=K+1
YES
S40
K<S-1?
NO
COORDINATE TRANSFORMATION
S50
CORRELATION VALUE COMPUTATION
S52
WEIGHTING-COEFFICIENT COMPUTATION
S54
ACQUISITION OF FIRST INTERPOLATED FRAME
S56
ACQUISITION OF SECOND INTERPOLATED FRAME
S58
SYNTHESIS
S60
END

FIG.22

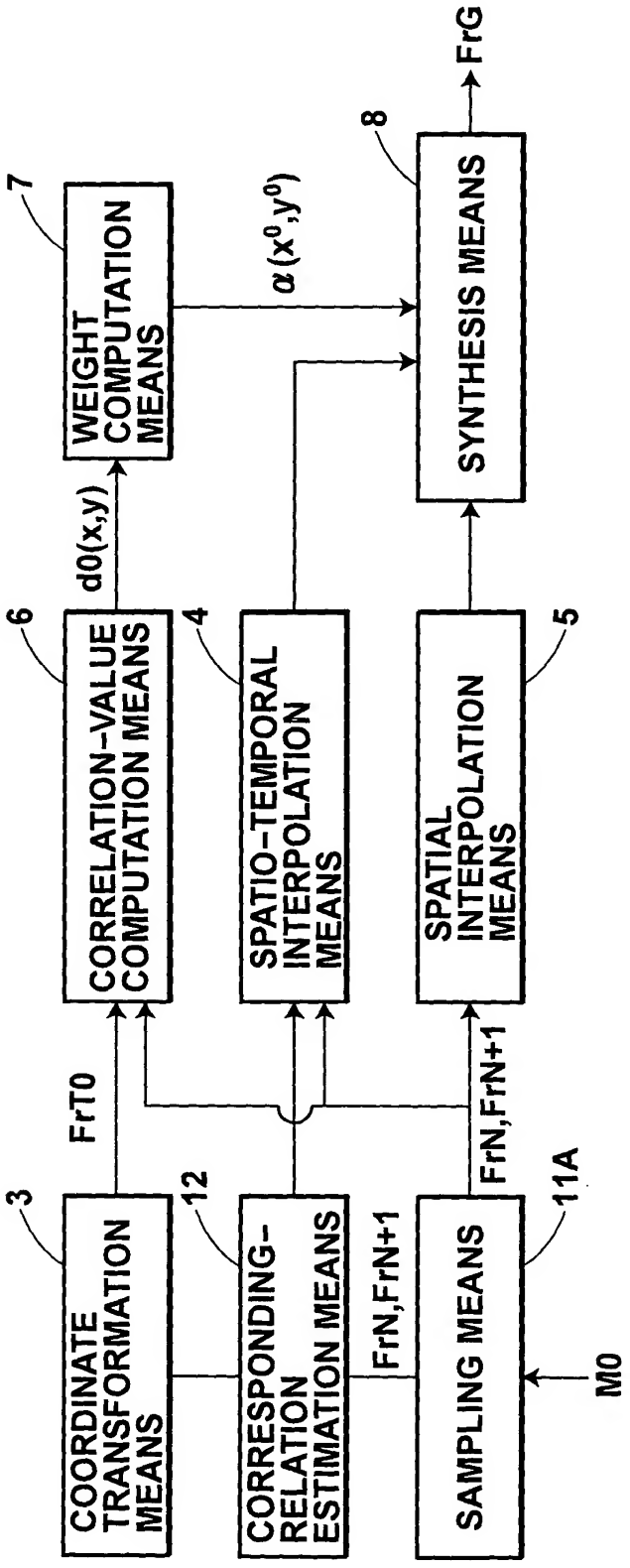

COORDINATE TRANSFORMATION MEANS
3
CORRESPONDING-RELATION ESTIMATION MEANS
12
SAMPLING MEANS
11A
M0
FrT0
FrN,FrN+1
FrN,FrN+1
CORRELATION-VALUE COMPUTATION MEANS
6
SPATIO-TEMPORAL INTERPOLATION MEANS
4
SPATIAL INTERPOLATION MEANS
5
d0(x,y)
WEIGHT COMPUTATION MEANS
7
α(x0,y0)
SYNTHESIS MEANS
8
FrG

FIG.23

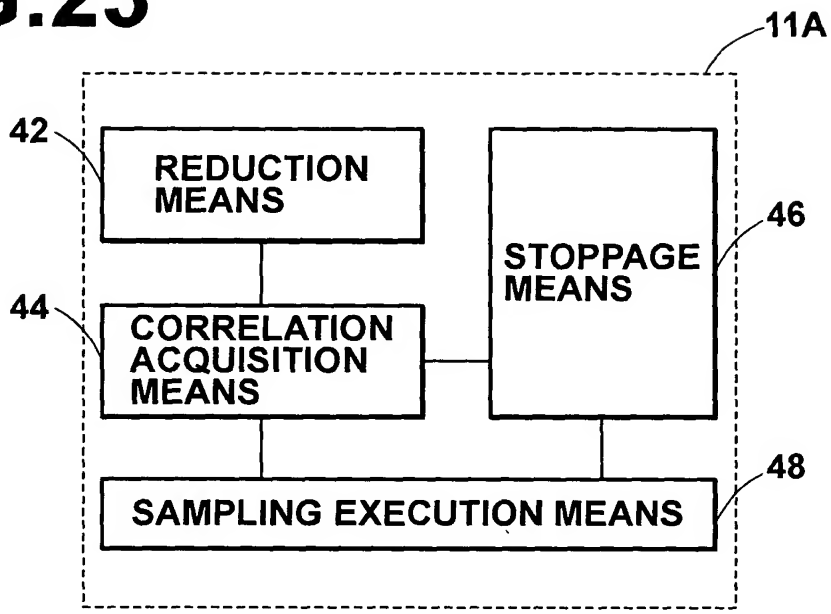

11A
42
REDUCTION MEANS
44
CORRELATION ACQUISITION MEANS
46
STOPPAGE MEANS
48
SAMPLING EXECUTION MEANS

FIG.24

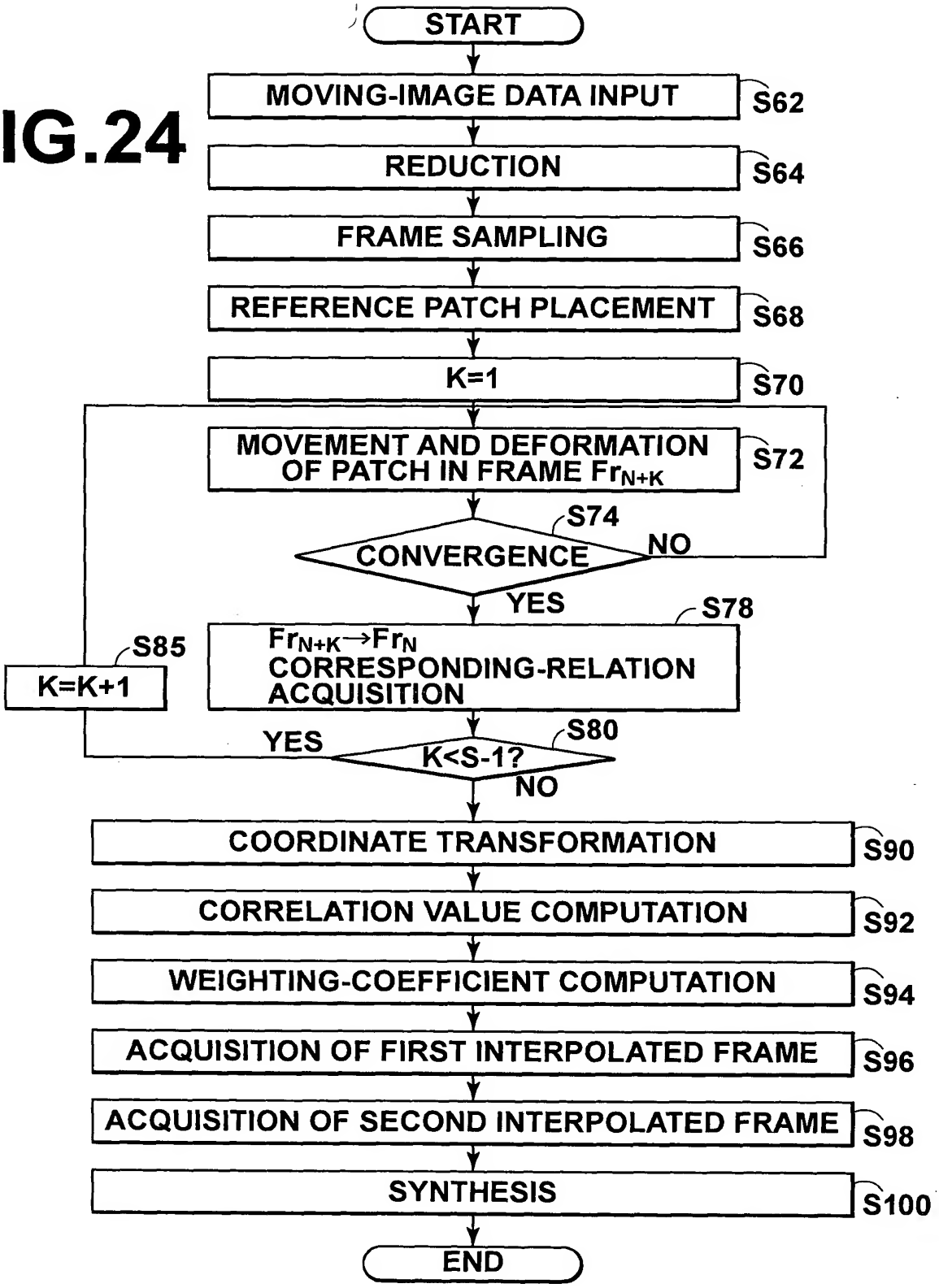

START
MOVING-IMAGE DATA INPUT
S62
REDUCTION
S64
FRAME SAMPLING
S66
REFERENCE PATCH PLACEMENT
S68
K=1
S70
MOVEMENT AND DEFORMATION OF PATCH IN FRAME Fr_{N+K}
S72
S74
CONVERGENCE
NO
YES
S78
$Fr_{N+K} \rightarrow Fr_N$ CORRESPONDING-RELATION ACQUISITION
S85
K=K+1
YES
S80
K<S-1?
NO
COORDINATE TRANSFORMATION
S90
CORRELATION VALUE COMPUTATION
S92
WEIGHTING-COEFFICIENT COMPUTATION
S94
ACQUISITION OF FIRST INTERPOLATED FRAME
S96
ACQUISITION OF SECOND INTERPOLATED FRAME
S98
SYNTHESIS
S100
END

FIG.25

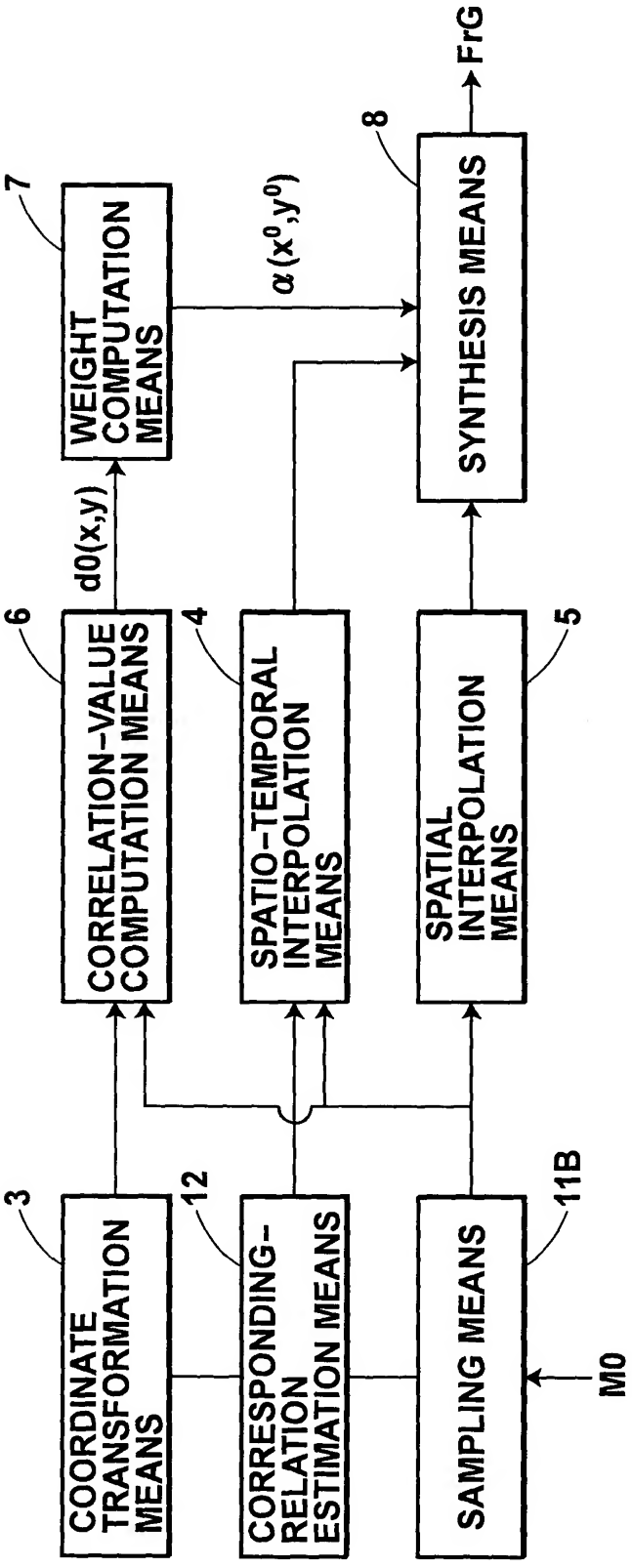

FrG
8
SYNTHESIS MEANS
7
WEIGHT COMPUTATION MEANS
α (x0,y0)
d0(x,y)
6
CORRELATION-VALUE COMPUTATION MEANS
4
SPATIO-TEMPORAL INTERPOLATION MEANS
5
SPATIAL INTERPOLATION MEANS
3
COORDINATE TRANSFORMATION MEANS
12
CORRESPONDING-RELATION ESTIMATION MEANS
11B
SAMPLING MEANS
M0

FIG.26

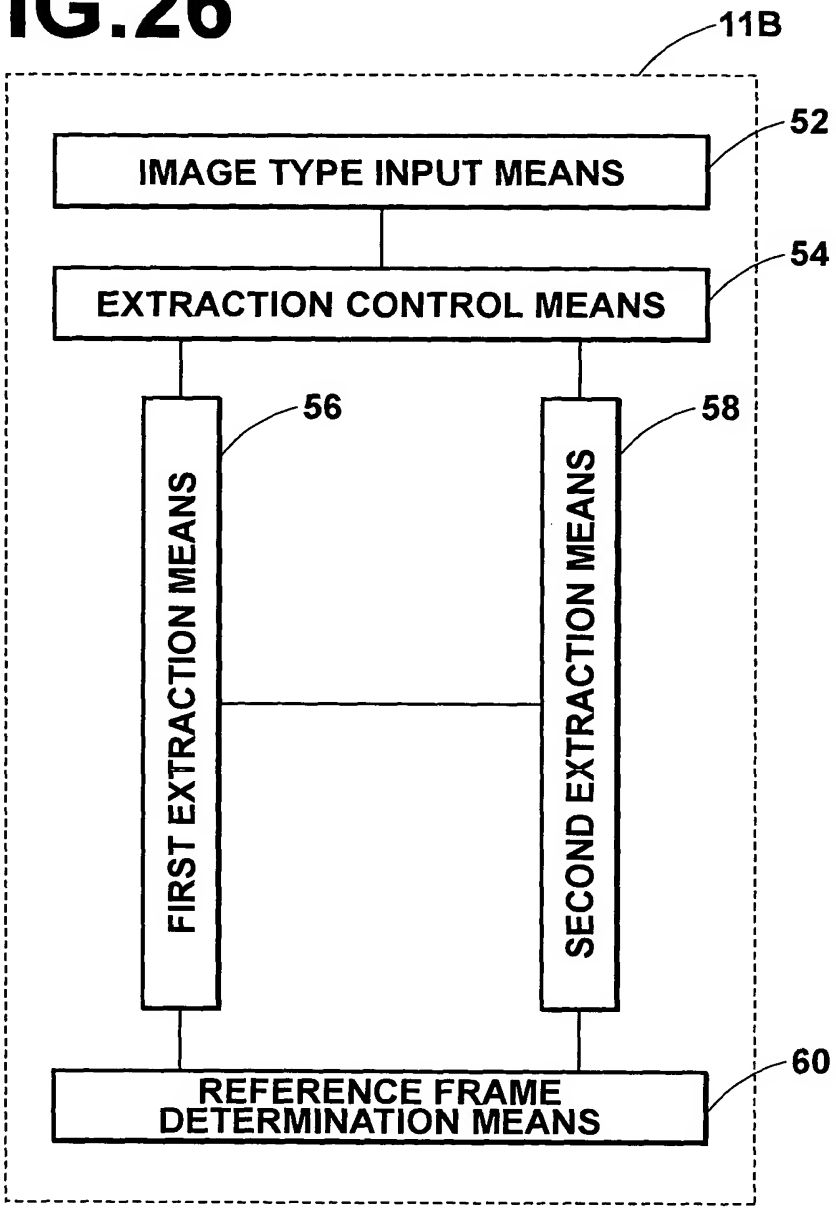

11B
52
IMAGE TYPE INPUT MEANS
54
EXTRACTION CONTROL MEANS
56
58
FIRST EXTRACTION MEANS
SECOND EXTRACTION MEANS
60
REFERENCE FRAME DETERMINATION MEANS

FIG.27A

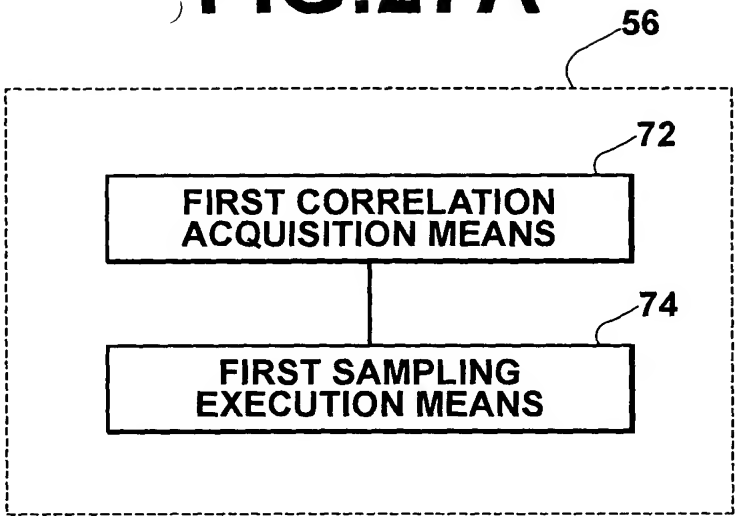


FIG.27B

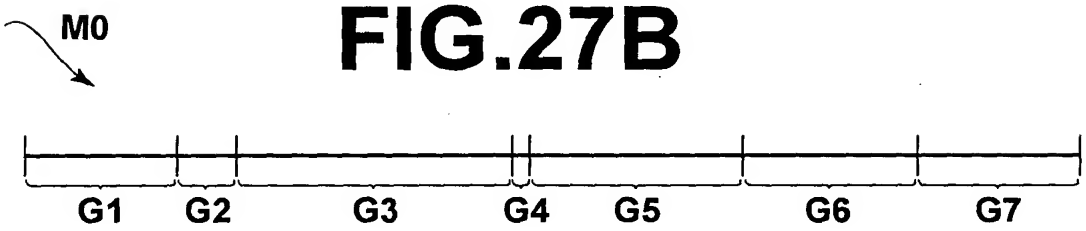


FIG.28

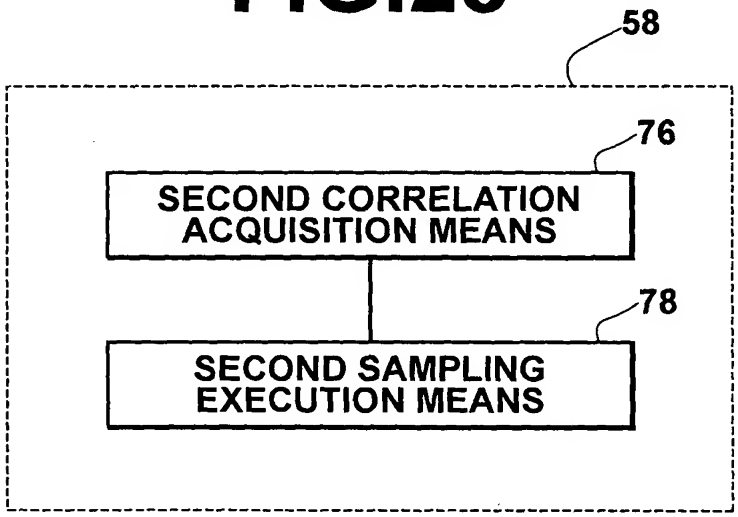


FIG.29

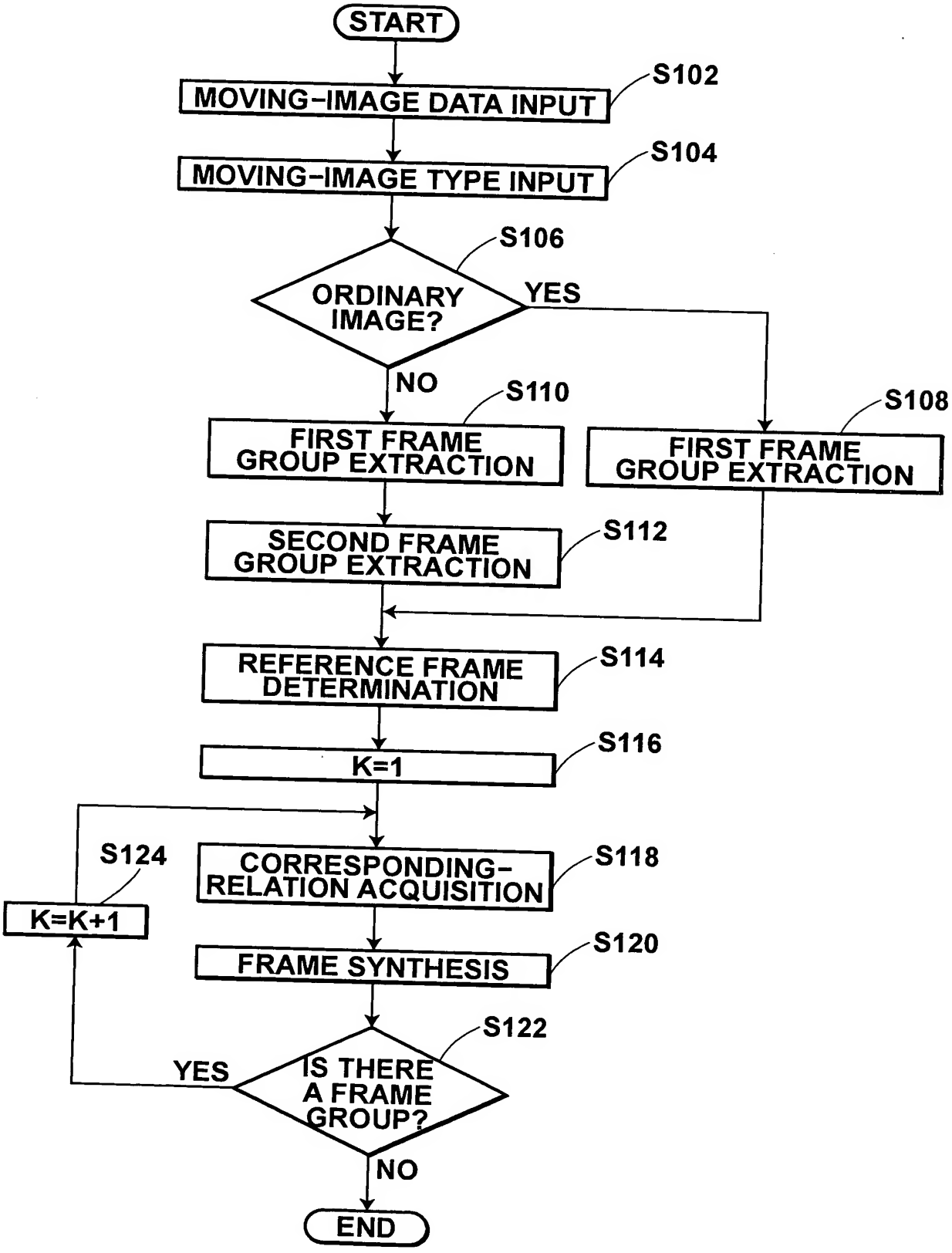

START
MOVING-IMAGE DATA INPUT
S102
MOVING-IMAGE TYPE INPUT
S104
S106
ORDINARY IMAGE?
YES
NO
S110
FIRST FRAME GROUP EXTRACTION
S108
FIRST FRAME GROUP EXTRACTION
SECOND FRAME GROUP EXTRACTION
S112
REFERENCE FRAME DETERMINATION
S114
K=1
S116
S124
K=K+1
CORRESPONDING-RELATION ACQUISITION
S118
FRAME SYNTHESIS
S120
S122
YES
IS THERE A FRAME GROUP?
NO
END

FIG.30

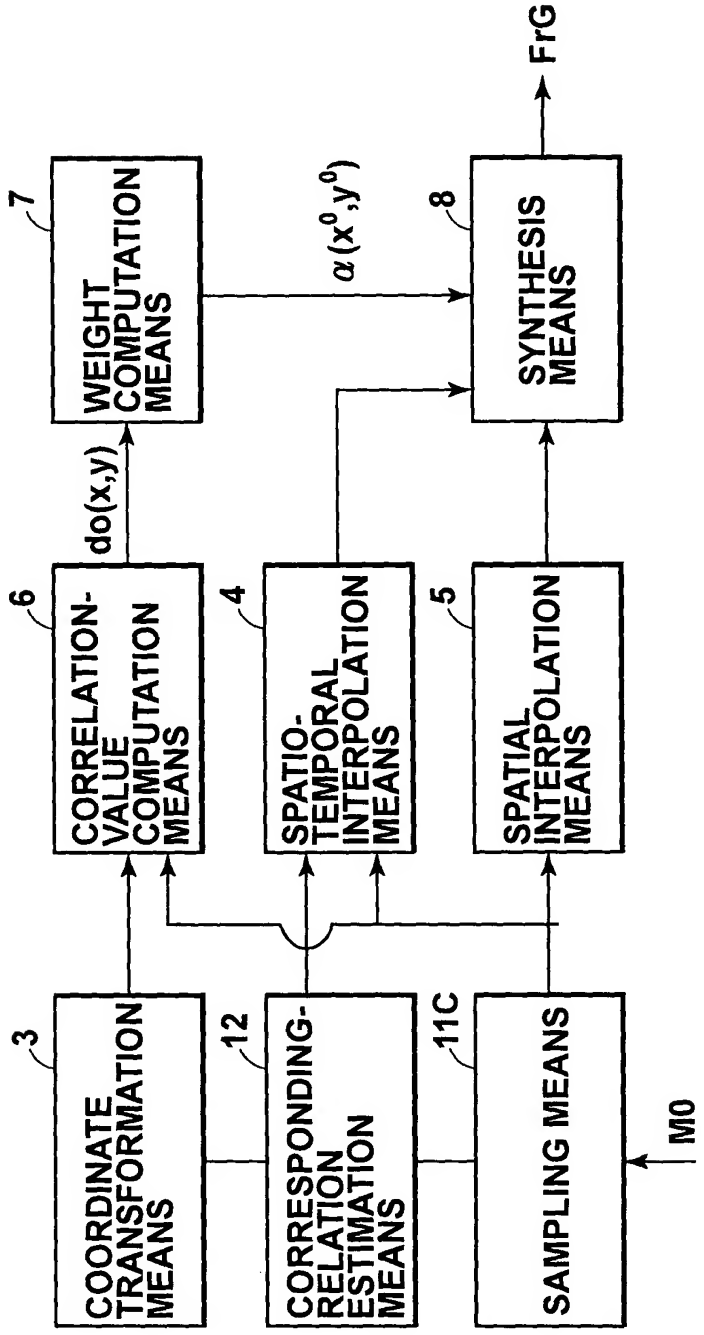

FrG
7
WEIGHT COMPUTATION MEANS
$\alpha(x^0,y^0)$
8
SYNTHESIS MEANS
do(x,y)
6
CORRELATION-VALUE COMPUTATION MEANS
4
SPATIO-TEMPORAL INTERPOLATION MEANS
5
SPATIAL INTERPOLATION MEANS
3
COORDINATE TRANSFORMATION MEANS
12
CORRESPONDING-RELATION ESTIMATION MEANS
11C
SAMPLING MEANS
M0

FIG.31

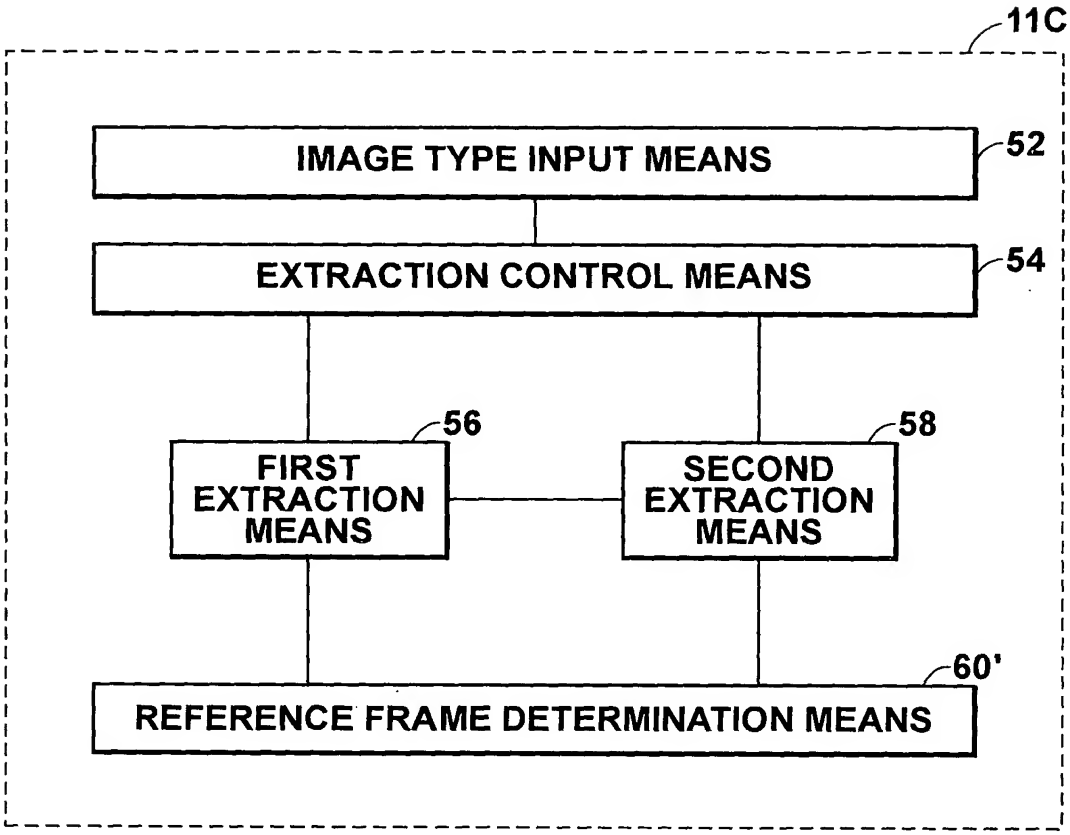

11C
IMAGE TYPE INPUT MEANS
52
EXTRACTION CONTROL MEANS
54
56
FIRST EXTRACTION MEANS
58
SECOND EXTRACTION MEANS
60'
REFERENCE FRAME DETERMINATION MEANS

FIG.32

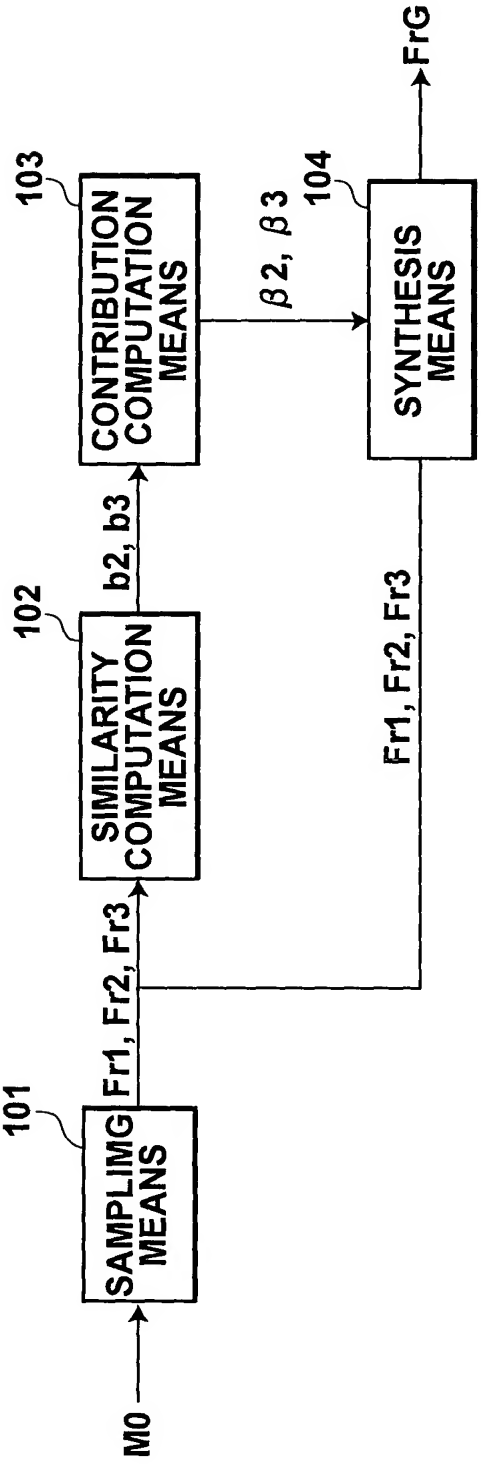

M0
101
SAMPLIMG MEANS
Fr1, Fr2, Fr3
102
SIMILARITY COMPUTATION MEANS
b2, b3
103
CONTRIBUTION COMPUTATION MEANS
β2, β3
104
SYNTHESIS MEANS
Fr1, Fr2, Fr3
FrG

FIG.33

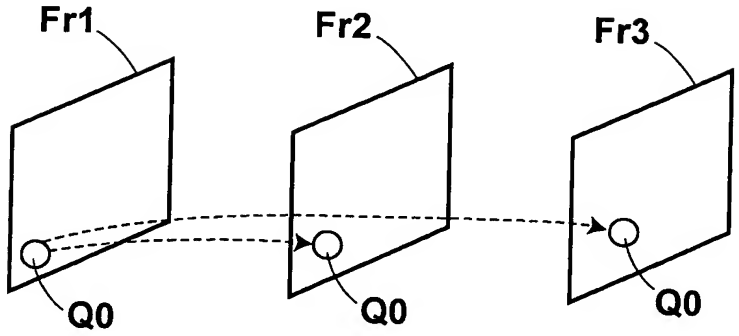


FIG.34A

100	100	80	80
100	100	80	80
100	100	40	40
100	100	40	40

FIG.34B

10	10	8	8
10	10	8	8
10	10	4	4
10	10	4	4

FIG.35

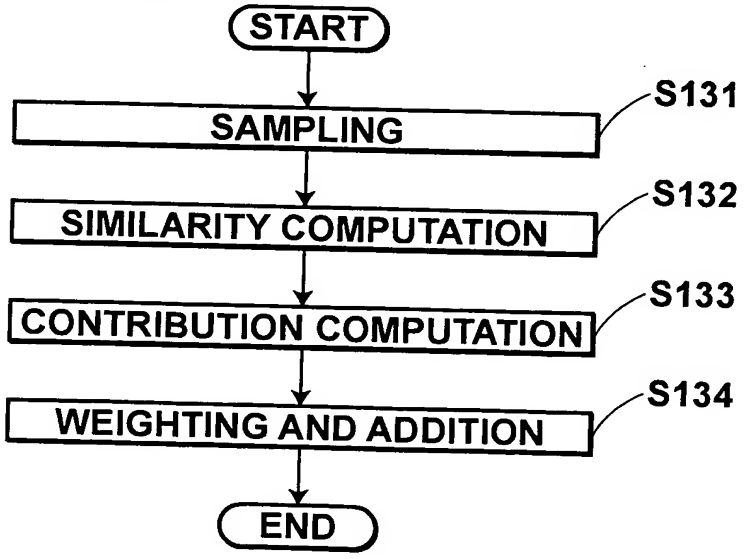


FIG.36

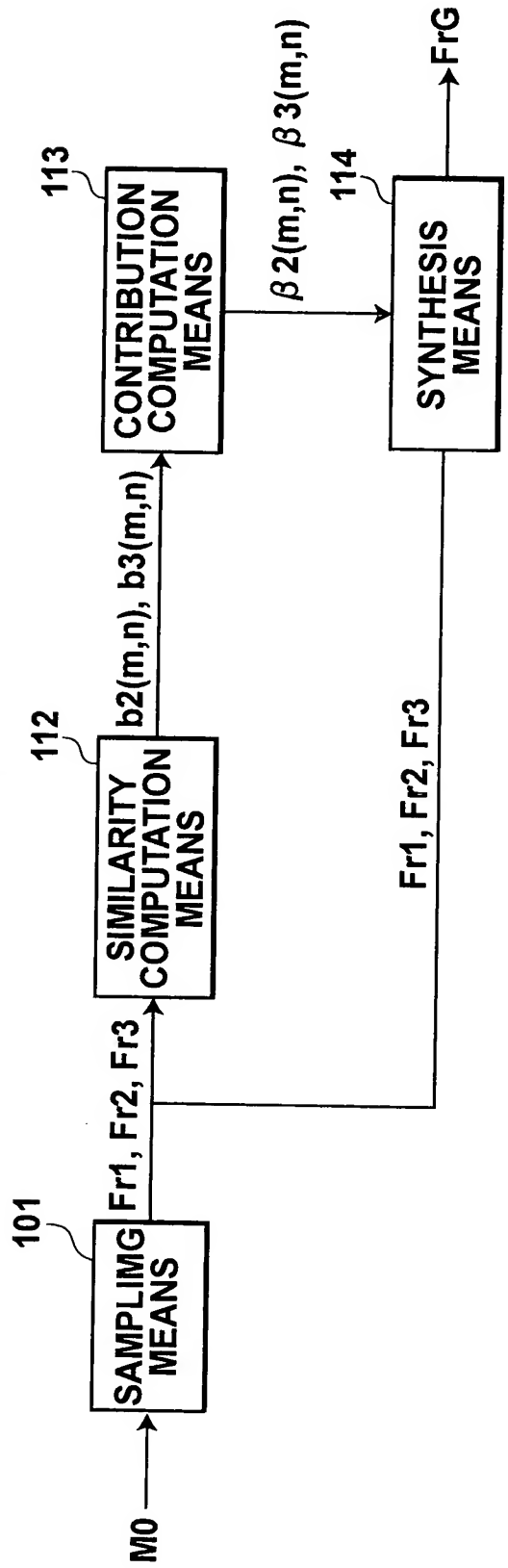

M0
101
SAMPLIMG MEANS
Fr1, Fr2, Fr3
112
SIMILARITY COMPUTATION MEANS
b2(m,n), b3(m,n)
113
CONTRIBUTION COMPUTATION MEANS
β2(m,n), β3(m,n)
114
SYNTHESIS MEANS
FrG
Fr1, Fr2, Fr3

FIG.37

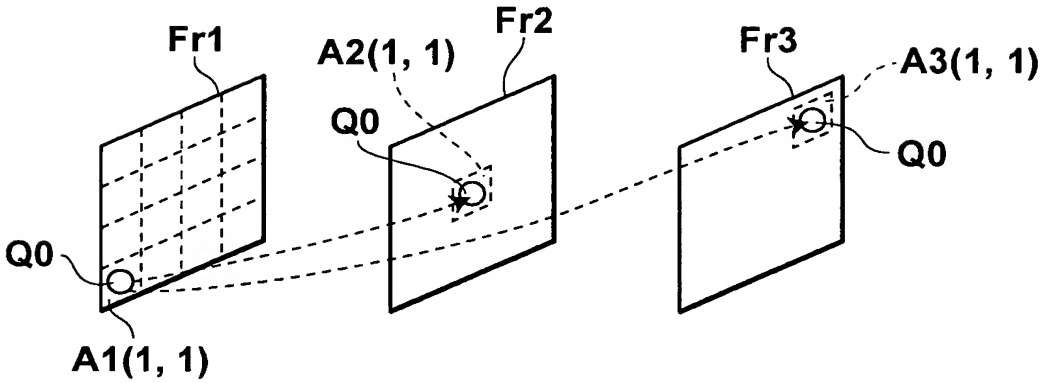

Fr1
A2(1, 1)
Fr2
Fr3
A3(1, 1)
Q0
Q0
Q0
A1(1, 1)

FIG.38

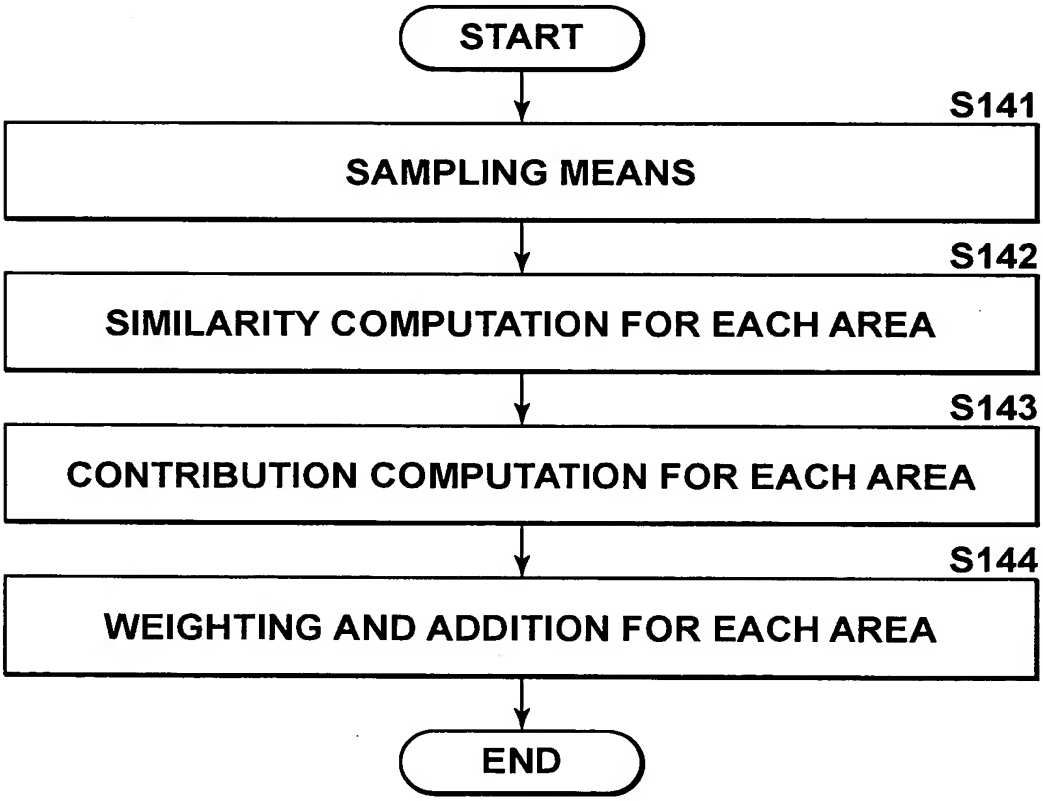

START
S141
SAMPLING MEANS
S142
SIMILARITY COMPUTATION FOR EACH AREA
S143
CONTRIBUTION COMPUTATION FOR EACH AREA
S144
WEIGHTING AND ADDITION FOR EACH AREA
END

FIG.39

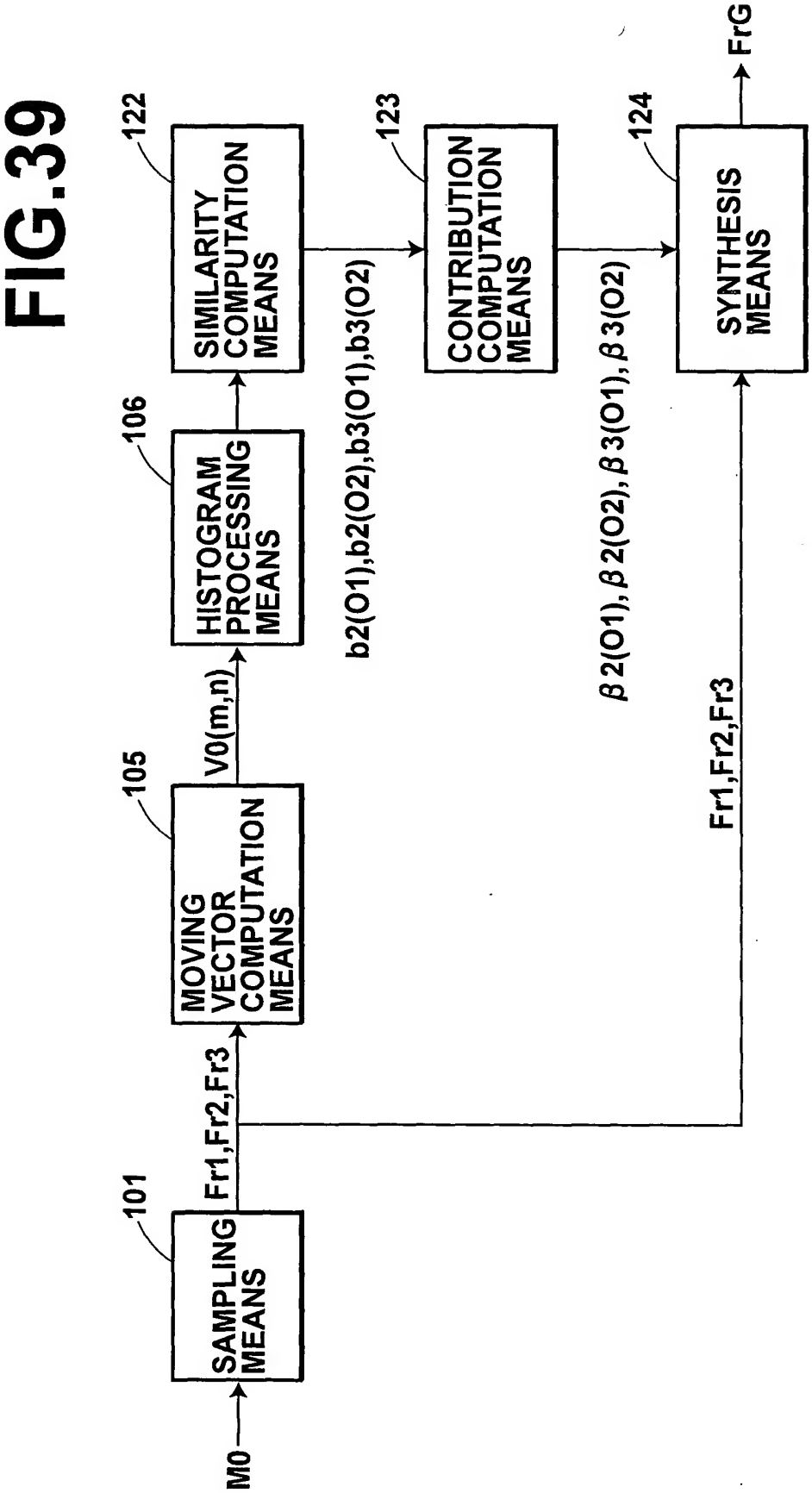

M0
101
SAMPLING MEANS
Fr1,Fr2,Fr3
105
MOVING VECTOR COMPUTATION MEANS
V0(m,n)
106
HISTOGRAM PROCESSING MEANS
122
SIMILARITY COMPUTATION MEANS
b2(O1),b2(O2),b3(O1),b3(O2)
123
CONTRIBUTION COMPUTATION MEANS
β2(O1),β2(O2),β3(O1),β3(O2)
124
SYNTHESIS MEANS
Fr1,Fr2,Fr3
FrG

FIG.40

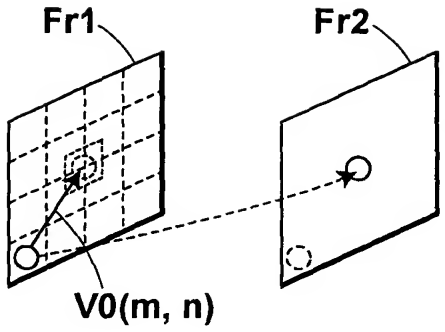


FIG.41A

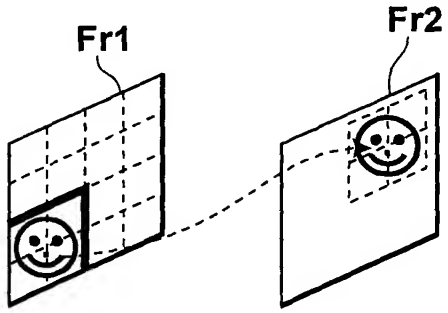


FIG.41B

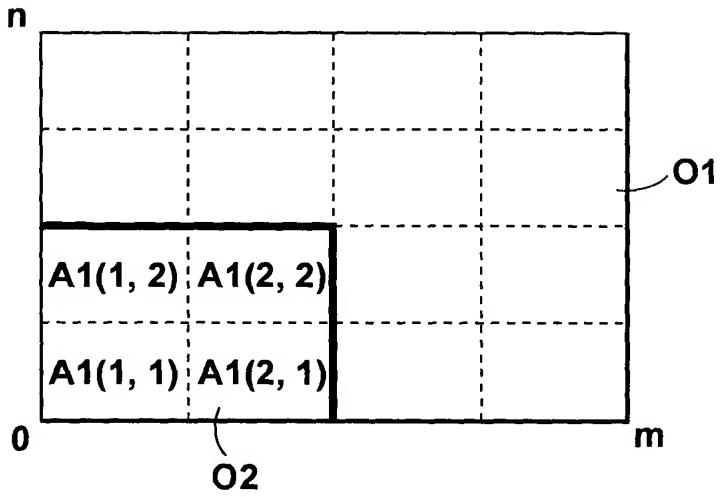


FIG.42

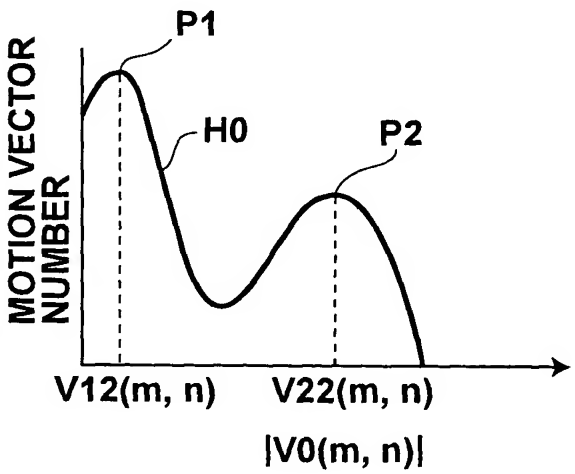
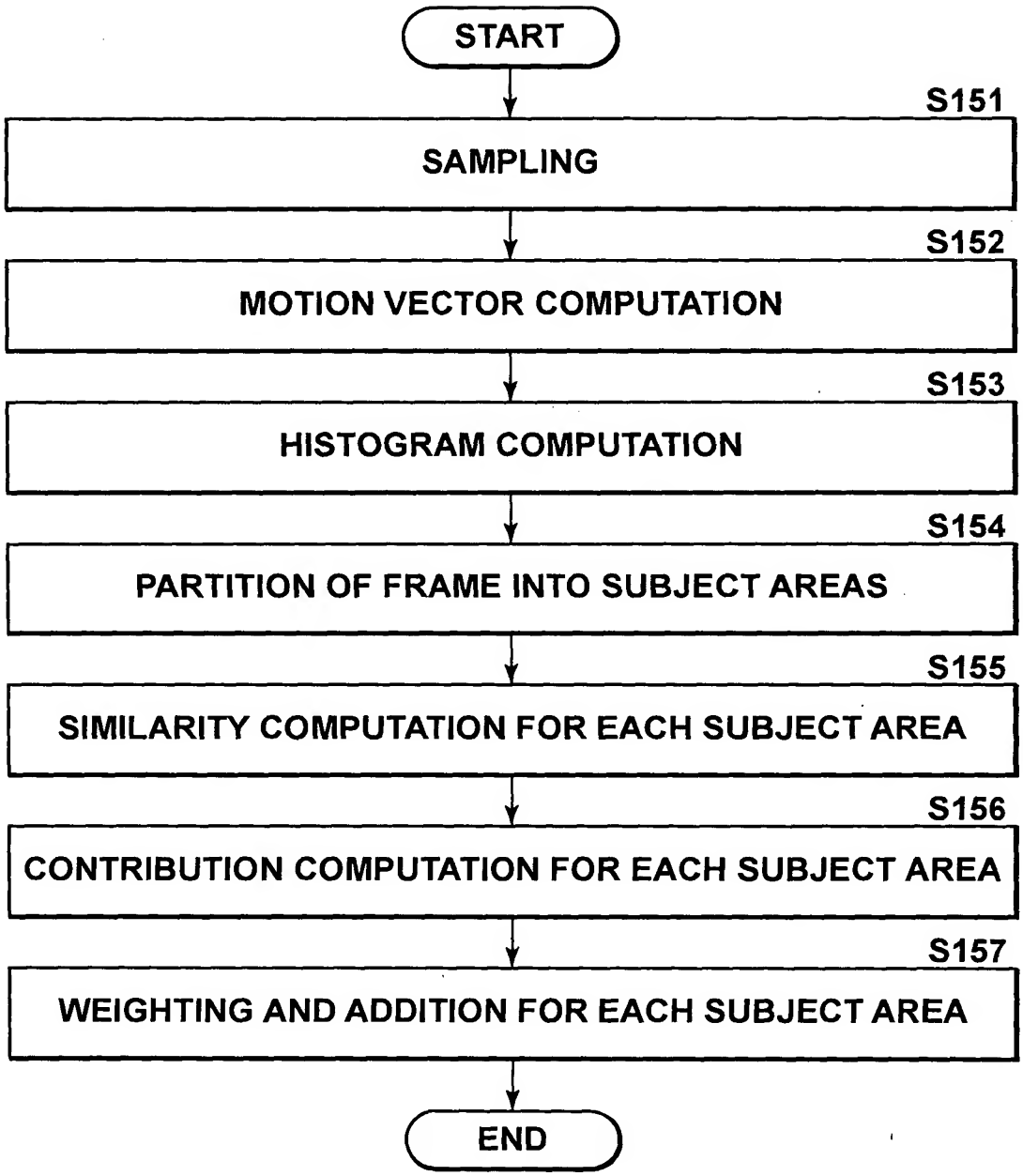


FIG.43


START
S151
SAMPLING
S152
MOTION VECTOR COMPUTATION
S153
HISTOGRAM COMPUTATION
S154
PARTITION OF FRAME INTO SUBJECT AREAS
S155
SIMILARITY COMPUTATION FOR EACH SUBJECT AREA
S156
CONTRIBUTION COMPUTATION FOR EACH SUBJECT AREA
S157
WEIGHTING AND ADDITION FOR EACH SUBJECT AREA
END